

Amendments to the Claims:

Please cancel claims 2 and 8, and amend claims 1, 3-7 and 9 as shown in the following list of claims. This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) A method of canceling a narrow-band interference signal in a receiver, comprising the steps of:

[[-]] subtracting a reference signal (~~ref_in~~) from a received input signal (~~in~~);

[[-]] calculating the phase of a result of the subtraction on the basis of an arctangent function,

[[-]] performing an unwrap function on the output signal from the arctangent function, by removing the modulo 2π limitation introduced with the arctangent function, thereby producing an absolute phase representation,

[[-]] determining a frequency offset by comparing phase representation values which are shifted predetermined in time, and

[[-]] canceling the narrow-band interference signal based on the result of the determined frequency offset,

wherein the unwrap function accumulates k times 2π , where k depends on the wrapped function so that k will be increased by 1 if the difference between the last corrected sample and the current sample is smaller than $-\pi$, and k will be decreased by 1 if the difference between the last corrected sample and the current sample is greater than π .

2. (canceled).

3. (currently amended) A method according to claim 1, characterized in that the subtracting step can be put on a hold a predetermined period of time, if there is no reference signal available to perform the subtraction.

1 4. (currently amended) A method according to claim 1 [[2]], characterized in
2 that the unwrap function can be put on a hold a predetermined period of time, if
3 there is no reference signal available to perform the unwrap function.

1 5. (currently amended) A method according to claim 1 [[2]], characterized in
2 that the canceling the narrow-band interference signal is performed by selecting a
3 filter from within a filter-bank based on the value of k .

1 6. (currently amended) A method according to claim 1 [[2]], characterized in
2 that the canceling the narrow-band interference signal is performed by generating
3 a second narrow-band signal, which corresponds to the narrow-band interference
4 signal, and by subtracting the second narrow-band signal from the distorted
5 desired wide-band signal.

1 7. (currently amended) An apparatus characterized in that the apparatus
2 comprises
3 [[-]] a subtracting unit (~~SU~~) for subtracting a reference signal (~~ref_in~~) from
4 a received input signal (~~in~~);

5 [[-]] a complex phase calculator for calculating the phase of a result of the
6 subtraction signal on a sample-by-sample basis of the in-phase and quadrature
7 components of the signal and performing an arctangent function on the in-phase
8 and quadrature components of the incoming signal,

9 [[-]] a phase unwrap module for removing discontinuities in the phase if
10 the phase passes the in-phase axes in the complex plane with an absolute value
11 greater than π ,

12 [[-]] a comparator module arranged to compare the difference in phase
13 signal values at predetermined time intervals, the difference in said values
14 representing a [[an]] frequency offset in the subtracting signal, and

15 [[-]] a canceling means for canceling the narrow-band interference signal
16 based on the result of the determined frequency offset,

17 wherein the phase unwrap module is configured to accumulate k times 2π ,
18 where k depends on the wrapped function so that k will be increased by 1 if the
19 difference between the last corrected sample and the current sample is smaller

20 than $-1/\Delta$, and k will be decreased by 1 if the difference between the last corrected
21 sample and the current sample is greater than $1/\Delta$.

1 8. (canceled).

1 9. (currently amended) An apparatus according to claim 7 ~~[[8]]~~, characterized
2 in that the canceling means comprises a filter-bank, wherein the narrow-band
3 interference signal is canceled by selecting a filter from within said filter-bank
4 based on the value of k .

1 10. (original) An apparatus according to claim 7, characterized in that the
2 canceling means comprises a generating means for generating a second narrow-
3 band signal, which corresponds to the narrow-band interference signal, and a
4 subtracting means for subtracting the second narrow-band signal from the
5 distorted desired wide-band signal.